

LISTING OF CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1–26. (Cancelled)

27. (New) A method of calibrating an RTP system, the method comprising:
providing at least two calibration wafers, wherein the calibration wafers have differing predetermined reflectivities;

successively subjecting each calibration wafer to a simulated thermal treatment comprising heat radiation;

determining the temperature of each calibration wafer during thermal treatment using a contact-based measuring device that is in contact with the wafer;

measuring radiation emitted from each calibration wafer during the simulated thermal treatment; and

calculating a set of temperature measurement model parameters to correct temperature measurements based on measured radiation by comparing temperature measurements based on measured radiation to the actual temperature determined using the contact-based measuring device.

28. (New) The method as set forth in claim 27, wherein the simulated thermal treatment comprises heating each calibration wafer to four different temperatures and holding the wafer at each temperature for a set period of time.

29. (New) The method as set forth in claim 28, wherein the four different temperatures lie in a range from about 200°C to about 1200°C.

29. (New) The method as set forth in claim 27, wherein the calibration wafers comprise uncoated wafers doped to a transmissivity of about 0.0 to about 0.3 at the wavelength of the heat radiation.

30. (New) The method as set forth in claim 27, wherein at least four calibration wafers are provided.

31. (New) The method as set forth in claim 30, wherein each of the four calibration wafers have different reflectivities ranging from about 0.2 to about 0.8; a

transmissivity of about 0.3; and a emissivity between about 0.25 and 0.8 at the wavelength of the heat radiation

33. (New) The method as set forth in claim 27, wherein providing a calibration wafer comprises:

providing a wafer of semiconductor material;

subjecting the bulk material of the wafer to at least one of doping with foreign atoms and generating lattice defects to adjust the predetermined emissivity; and coating the wafer to obtain a further optical characteristic.

34. (New) A method according to claim 33, wherein said further optical characteristic is a predetermined reflectivity.

35. (New) A method according to claim 33, wherein said emissivity is established to a value of between 0.25 and 0.8 at the wavelength of the heat radiation.

36. (New) A method according to claim 33, wherein said at least one of doping with foreign atoms and generating lattice defects is effected essentially homogenously over the bulk material of the wafer.

37. (New) A method according to claim 33, wherein said at least one of doping with foreign atoms and generating lattice defects is effected in a predetermined region.

38. (New) A method according to claim 37, wherein said predetermined region is a layer of the wafer.

39. (New) A method according to claim 37, wherein a surface layer of the wafer is doped.

40. (New) A method according to claim 33, wherein doping is effected with at least one of boron, phosphorous and arsenic.

41. (New) A method according to claim 33, wherein adjusting of the predetermined emissivity is effected essentially exclusively via said at least one of doping with foreign atoms and generating lattice defects.

42. (New) A method according to claim 33, wherein the wafer is doped with a density of foreign atoms that is between 10^{16} and 10^{19} foreign atoms per cubic centimeter.

43. (New) A method according to claim 33, wherein the predetermined emissivity is effected at least partially via a selection of the thickness of the wafer.

44. (New) A method according to claim 33, wherein said further optical characteristic is a reflectivity of the wafer, and wherein the reflectivity is established to a value between 0.2 and 0.8 at the wavelength of the heat radiation.

45. (New) A method according to claim 33, wherein the wafer is coated with a metallic layer to obtain the further optical characteristic.

46. (New) A method according to claim 45, wherein the wafer is coated with cobalt.